MEMORANDUM FOR FILE: (CENWK-PM-E) March 17, 2006

CC: CENWO (Schwartz)

SUBJECT: Former Nebraska Ordnance Plant Superfund Site, Mead, NE; Operable Unit 02 – NWK Responses to comments made by the consultant for the Saunders County Board of Supervisors on the RDGM modeling reports prepared by URS (2004)

PURPOSE: To address comments and statements made by the consultant to the Saunders County Board of Supervisors on the RDGM modeling reports prepared by URS for the Former NOP project.

1. INTRODUCTION

In late August 2005, the US Army Corps of Engineers (USACE) Kansas City District (KCD) received a copy of a press release dated August 16, 2005, which was issued by the Saunders County Board of Supervisors. This copy was sent to KCD by the USACE Omaha District. The subject of the press release is the groundwater model prepared by the Metropolitan Utilities District (MUD) for its Platte West well field project. The press release contains a summary of comments prepared by International Water Consultants, Inc., a consultant commissioned by the Saunders County Board to review the report titled "Preliminary Final Well Field/Groundwater Modeling Study, Metropolitan Utilities District, Platte West well field, Yutan, NE" issued by MUD in November 2004. The press release indicates that the consultant also reviewed a groundwater modeling report issued by KCD in 2002, for the Former Nebraska Ordnance Plant site.

Additionally, KCD also received a copy of a report addressed to Mr. Dean Busing of the Saunders County Board, dated August 10, 2005, issued by International Water Consultants, Inc. This report contains the specific comments which were summarized in the August 16, 2005, press release. Although the primary focus of the consultant's report appears to have been a review of the 2004 MUD model report, the consultant also made several comments on two different reports issued by KCD in July 2002 and April 2004. Further, the consultant's report includes statements regarding the current and future status of the on-going remediation efforts being performed by KCD at the Former NOP site.

This memo will address only the consultant's comments that pertain directly to the groundwater modeling reports issued by KCD, and the on-going remediation efforts being performed by KCD. This memo will not attempt to address the consultant's comments that pertain directly to the 2004 MUD model report, nor will this memo speculate on how MUD could or should respond to the consultant's comments.

2. SUMMARY OF CONSULTANT'S COMMENTS ON GROUNDWATER MODELING REPORTS ISSUED BY KCD

The following is a list of comments or statements made by the consultant which pertain the on-going remediation efforts being performed by KCD:

A. Item #4, page 2 of the August 16 2005 Press Release - Comment(s) by the consultant regarding the extent of contamination, as determined and depicted by KCD
B. Item 5, page 2 of the August 16 2005 Press Release - Comment(s) by the consultant regarding possible, future corrective measures if it is determined that Platte West operations have a negative effect on the remediation system operated by KCD
C. 3rd bullet, page 3 of the August 16 2005 Press Release - Comment(s) by the consultant regarding the need for additional monitoring wells at the Former NOP site, especially the eastern side of the site
D. Section titled "Overview," pages 2 and 3 of the consultant's report - Statement(s) by the consultant reiterating the conclusions made in past KCD reports (prepared by URS Corporation)
E. Item #4, pages 7 and 8 of the consultant's report - Comment(s) by the consultant regarding the way river boundary conductance was addressed in the KCD reports
F. Item "Response 1," pages 9and 10 of the consultant's report - Comment(s) by the consultant regarding the effectiveness of the remediation system operated by KCD
G. Item "Response 4," pages 11 and 12 of the consultant's report - Comment(s) by the consultant regarding the way hydraulic conductivity was addressed in the KCD reports
H. Item "Response 6," page 13 of the consultant's report - Comment(s) by the consultant regarding local surface water bodies and the effectiveness of the remediation system operated by KCD
I. Item "Response 7," pages 13 and 14 of the consultant's report - Comment(s) by the consultant regarding the need for additional monitoring wells at the Former NOP site, especially the eastern side of the site

3. KCD RESPONSES TO CONSULTANT'S COMMENTS

A. In Item #4, page 2 of the August 16 2005 Press Release, the consultant states that "Critical to the evaluation of the potential impact of the Platte West well field upon the eastern extent of the former NOP plumes is a good understanding of the limits, distribution, and character of the contaminant

plumes." In general, KCD agrees with this statement. In October & November 2005, KCD conducted an investigation effort that included collecting groundwater samples from three different depth intervals at over 100 locations across the site. Approximately half of these locations were near the eastern boundary of the contaminant plume. The purpose of this study was to help determine the actual extent of contamination and compare the results to the site maps that visually depict the plume areas and boundaries.

The results of this study were affirmative and showed that the site maps prepared by KCD accurately depict the extent of contamination to within a few hundred feet. A follow-up investigation effort is planned for the Spring of 2006 which will be dedicated to determining the location of the eastern plume boundary and will consist of several hundred samples being collected. These two investigation efforts combined will allow KCD to prepare updated site maps that will accurately depict the extent of contamination.

In Item #4, page 2 of the August 16 2005 Press Release, the consultant comments on KCD's practice of depicting the extent of contamination based on the established safe drinking water limits. The consultant goes on to suggest that KCD should depict the plume boundaries based on any detectable quantities, even if those quantities are below the established safe drinking water levels. KCD does not agree with this suggestion for the primary reason that this suggestion in not in accordance with the best practices found in the environmental remediation industry. Furthermore, KCD is charged with capturing and treating groundwater that contains contamination above the established safe drinking water limits. There are, and will continue to be, instances where the groundwater contains small, detectable levels of contamination that are below the safe limits. But it is not necessary to capture or treat this groundwater because it does not pose a risk to human health or the environment.

KCD takes this mission very seriously and endeavors to protect the public health. The investigation efforts described above will allow KCD (and the regulatory agencies, and the public) to best determine the extent of contamination. Further, KCD will install a large number of new monitoring wells along the eastern side of the plume boundary, so that any future effects on the NOP plume, by the Platte West operations, will be detected. These new monitoring wells will be in place before the end of 2006, so that they may be sampled on a quarterly basis in 2007, along with all the other monitoring wells that already exist at the site. This will yield a year's worth of information prior to Platte West operations starting in 2008. These wells will continue to be sampled in 2008 and beyond, in order to provide a monitoring network capable of detecting any adverse effects from the Platte West well field, and to

maintain a vigilant watch over the areas and residential properties between the NOP site and the Platte West well field.

B. In Item #5, page 2 of the August 16 2005 Press Release, the consultant suggests several different corrective measures that could be implemented in the event that Platte West operations are found to have a negative effect on the remediation system operated by KCD. In general, KCD agrees with the consultant's suggestions. However, the range of possible corrective measures is not limited to only the consultant's suggestions. There are other methods and techniques available that could be considered as possible corrective measures. The possible need for any corrective measures would be based on the available evidence that the remediation system operated by KCD is no longer capable of capturing the contaminated groundwater. If such a determination were made, KCD, along with the appropriate regulatory agencies, would work as expeditiously as possible to select and implement one or more corrective measures.

C. In the 3rd bullet on page 3 of the August 16 2005 Press Release, the consultant suggests that 10 new monitoring wells should be installed within 2500 feet of the easternmost plume boundary. KCD agrees with this suggestion, and in fact already has plans to install a large number of new monitoring wells along the eastern side of the site. Please see KCD's response to Comment A, above. As of January 2006, the exact number and location of the new monitoring wells is still being determined. However, the number of individual monitoring wells is expected to be 50 or more, and these will be located within several thousand feet or less of the easternmost plume boundary.

D. In the section titled "Overview," on pages 2 and 3 of the consultant's report, the consultant repeats some of conclusions made in a KCD report dated July 2002. This 2002 report was prepared by URS Corporation and evaluated possible impacts on the remediation system operated by KCD, from the Platte West well field operations. In 2002, the report concluded that the Platte west operations would not likely prevent the remediation system from capturing the contaminant plume, but that the Platte West operations could cause the NOP plume to expand. Since 2002, new information and data from the site have been collected, and modifications to the locations of the Platte West wells have been made. Based on the most up to date and complete modeling performed by KCD and MUD, KCD still concludes that the Platte

West well field will not prevent the remediation system from being able to capture the contaminant plume.

KCD recognizes that there is a level of uncertainty that is inherent in any modeling effort, and that there is enough concern regarding this site to warrant more detailed monitoring of the eastern side of the NOP site. As stated in KCD's response to Comment A, above, KCD will install a large number of new monitoring wells in order to monitor any future movement of the contaminant plume.

E. In Item #4, on pages 7 and 8 of the consultant's report, the consultant makes several comments regarding the way river boundary conductance was addressed in the KCD modeling reports, prepared by URS Corporation. This issue of modeling the riverbed conductance is a recurring theme in the consultant's comments. KCD agrees with the consultant's position that riverbed conductance is an important factor in the modeling performed for the NOP site. KCD also agrees with the consultant's statements that calibration of the model, in regards to riverbed conductance, should be an on-going endeavor and that future information about the Platte West well field, under a variety of pumping and river stage conditions, will help refine the way riverbed conductance is simulated in the models. In order to address the consultant's comments on the KCD model reports, regarding riverbed conductance, KCD will review the model reports prepared by MUD and also review new site information that was not previously available. KCD will also review the calibration procedures used to evaluate the sensitivity of the model to changes in riverbed conductance. Any new information regarding riverbed conductance will be used and incorporated into the next version of the KCD groundwater model report, scheduled for publication in late 2006.

F. In Item "Response 1," on pages 9 and 10 of the consultant's report, the consultant makes several comments regarding several different corrective measures that could be implemented in the event that Platte West operations are found to have a negative effect on the remediation system operated by KCD. In general, KCD agrees with the consultant's suggestions. Please see KCD's response to Comment B, above.

G. In Item "Response 4," on pages 11 and 12 of the consultant's report, the consultant makes several comments regarding the way hydraulic conductivity was addressed in the KCD model reports. KCD agrees with the consultant that hydraulic conductivity is an important factor in the groundwater

model. The different values for hydraulic conductivity assigned to different layers or zones within the model are based on the best site specific, regional, current and historic data available. In order to address the consultant's comments regarding the different values for hydraulic conductivity, KCD will review the available literature and new site data obtained since 2004, and then use this new information in the next version of the groundwater model report, currently scheduled for publication in late 2006,

H. In Item "Response 6," page 13 of the consultant's report, the consultant makes several comments regarding local surface water bodies and the effectiveness of the remediation system operated by KCD. The fact that portions of Johnson Creek can be regarded as a "gaining stream" and that this provides a pathway for contaminated groundwater to enter into Johnson Creek has been well documented by KCD in the past. KCD agrees that the way surface water bodies (such as Johnson, Clear and Silver Creeks) are simulated in the groundwater model, is an important factor to be evaluated. Additionally, KCD collects samples from Johnson Creek on a regular, quarterly basis. To date, only a small portion of Johnson Creek appears to be impacted by contaminated groundwater, and that water samples from Johnson Creek that are collected from locations downstream of the NOP site do not show any unacceptable levels of contamination. Samples from Silver and Clear Creek have not been found to have any consistent detections of contamination that exceed the acceptable levels. This is an open issue between KCD and the regulatory agencies that is currently under evaluation. For the immediate future, KCD will continue to collect samples from the three creeks and report these results to the regulatory agencies, as well as publish those results in the quarterly and annual monitoring reports.

I. In Item "Response 7," pages 13 and 14 of the consultant's report, the consultant makes several comments regarding the need for additional monitoring wells at the Former NOP site, especially the eastern side of the site. In general, KCD agrees with the consultant's comments and in fact, already has plans to install new monitoring wells, as stated in KCD's response to Comment A, above.

END